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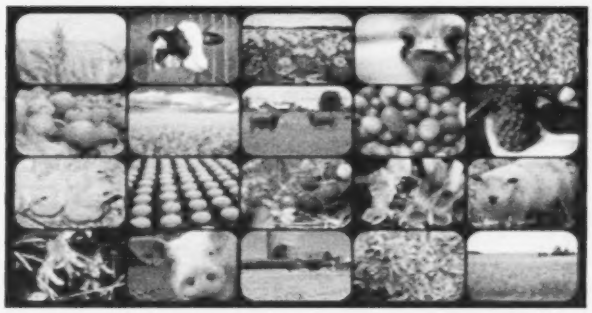
Production efficiency and prices drive trends in livestock



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.. not available for a specific reference period
... not applicable
0 true zero or a value rounded to zero
0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p} preliminary
^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E} use with caution
F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

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Production efficiency and prices drive trends in livestock

Fluctuating prices and demand, coupled with improved production efficiencies, continued to shape the livestock sector in 2016.

Beef cattle for breeding and feeding purposes decreased 2.4% from 2011 to 2016, with both the cow-calf and the feedlot sectors showing marginal changes in reported cattle.

The number of dairy cattle decreased 3.8% from 2011, while milk production continued to increase.

Pig inventories increased 11.1% from 2011 to 2016, recovering from unfavourable market conditions in the pig sector prior to 2011.

Poultry production increased for both meat and eggs in response to consumer demand.

Cattle numbers down on higher prices

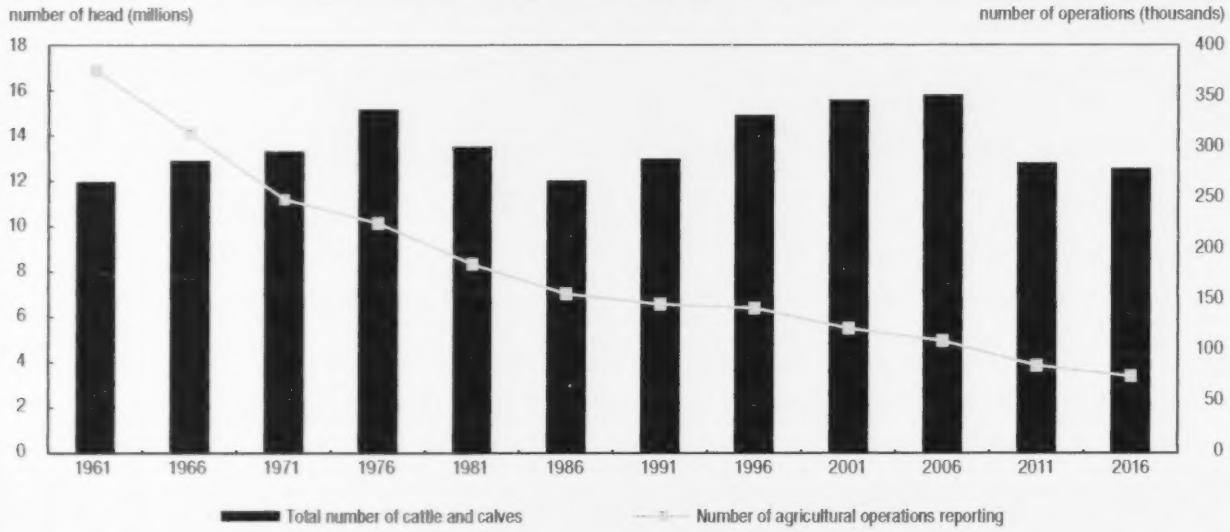
The total number of cattle and calves in Canada decreased 2.0% from 2011 to 12.5 million head in 2016. Meanwhile, the number of farms reporting cattle and calves declined 12.3% to 75,307. The cattle sector is divided into beef and dairy, with beef accounting for most of the cattle in the country.

The cyclical trend in the number of cattle and calves was largely driven by the beef sector (Chart 1). The cattle cycle and beef price cycle are strongly correlated. The two cycles move in opposite directions, meaning cattle numbers trend upward while prices are down as farm operators retain inventory. In the period between 2011 and 2016, the beef sector experienced strong international demand for Canadian beef breeding stock, primarily from the United States. Drought conditions between 2010 and 2012 caused a reduction in the size of the U.S. beef herd, driving demand. In 2013, as moisture conditions improved, the U.S. moved to restock, limiting supply. Increased demand coupled with limited supply drove prices to a record high in 2015 (CANSIM table 002-0068, accessed April 25, 2017), resulting in lower inventories in Canada.

Outside forces such as unfavourable weather conditions that affect feed availability and price, disease and economic conditions can also influence the cattle cycle. All of these factors are important in an operator's decision to expand or liquidate their herd.

In 2016, cattle and calf inventory was at its lowest since 1986.

Chart 1
Total number of cattle and calves and agricultural operations reporting, Canada, 1961 to 2016



Sources: CANSIM tables 004-0004 and 004-0221.

Beef farmers base decisions on prices

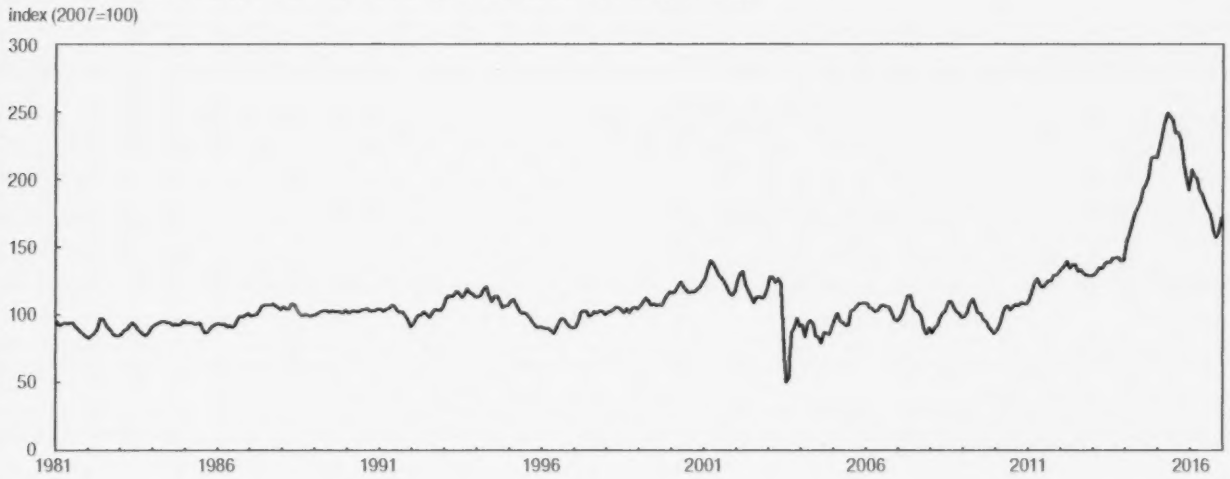
The reported number of beef cattle for breeding purposes (beef cows and beef heifers for replacement purposes) declined 1.0% from 2011 to 4.4 million in 2016. The number of farms reporting beef breeding cattle decreased 11.9% to 55,956 farms.

Cattle destined for feeding or slaughter (steers and feeder/slaughter heifers) declined by 4.7%, reducing the total number of feeder/slaughter cattle in Canada to 2.5 million in 2016. The number of farms reporting feeder/slaughter cattle fell by 16.9%.

From 2011 to 2016, the beef sector in Canada experienced some volatility, partially due to price fluctuations. The number of cow-calf operations decreased 9.5% from 2011 to 2016, while the average number of cattle on these farms increased 12.5%, showing consolidation. High cattle prices through most of 2015 created large profit opportunities for the cow-calf sector. Cattle prices reached a record high in April 2015 (CANSIM table 002-0068, accessed April 13, 2017).

The lower profitability that followed as prices began to fall in late 2015 contributed to the mild contraction of the feeding sector. The number of feedlots declined 14.1% and there were 2.2% fewer cattle reported on these operations.

Chart 2
Farm product price index, cattle and calves, Canada, 1981 to 2016 (monthly)



Source: CANSIM table 002-0068 (accessed April 13, 2017).

Another factor contributing to fewer beef operations was the lower profitability of beef farming relative to crop farming. Active farms that reported beef cattle in 2011, but did not report any beef cattle in 2016 reported higher acreages of field crops. From 2011 to 2016, on operations that used to report beef cattle, soybean area rose by 147,045 acres (+74.8%), while canola area increased by 248,663 acres (+20.0%).

Alberta leads in beef

Alberta's beef sector consists of a mix of cow-calf and feeding operations and has the most beef breeding cattle in Canada, representing 42.3% (1.9 million head) of the total.

Alberta accounted for 59.6% of the national feeder/slaughter cattle herd. Alberta's beef industry benefits from close proximity to processing capacity and availability of feed and pasture land. Combined, these factors provide Alberta with a comparative advantage over other provinces in the beef sector. In 2016, Alberta accounted for

37.4% of live cattle exports and 74.7% of bovine meat exports to the United States (Statistics Canada. 2017. Special tabulation, based on World Trade Atlas Database, accessed April 13, 2017).

Dairy cattle numbers decrease while efficiency rises

The total number of dairy cattle reported in Canada decreased 3.8% from 2011 to 1.4 million in 2016. The number of farms reporting dairy cattle fell 14.0% from 2011.

On farms reporting dairy cattle, the average number of dairy cattle per farm increased 11.9% from 2011 to 100 dairy cattle per farm in 2016. The goal of supply management in the Canadian dairy industry is to balance the supply and demand of milk and maintain stable production throughout the year and throughout the country through a quota system.

Canada's dairy type farms are concentrated in Quebec and Ontario, where combined, it is the largest agricultural farm type by gross farm receipts. Quebec accounted for 35.7% of national dairy cows and heifers and 42.0% of farms reporting dairy cattle in 2016. Ontario followed closely behind, accounting for 34.2% of national dairy cattle and 34.9% of farms reporting dairy cattle.

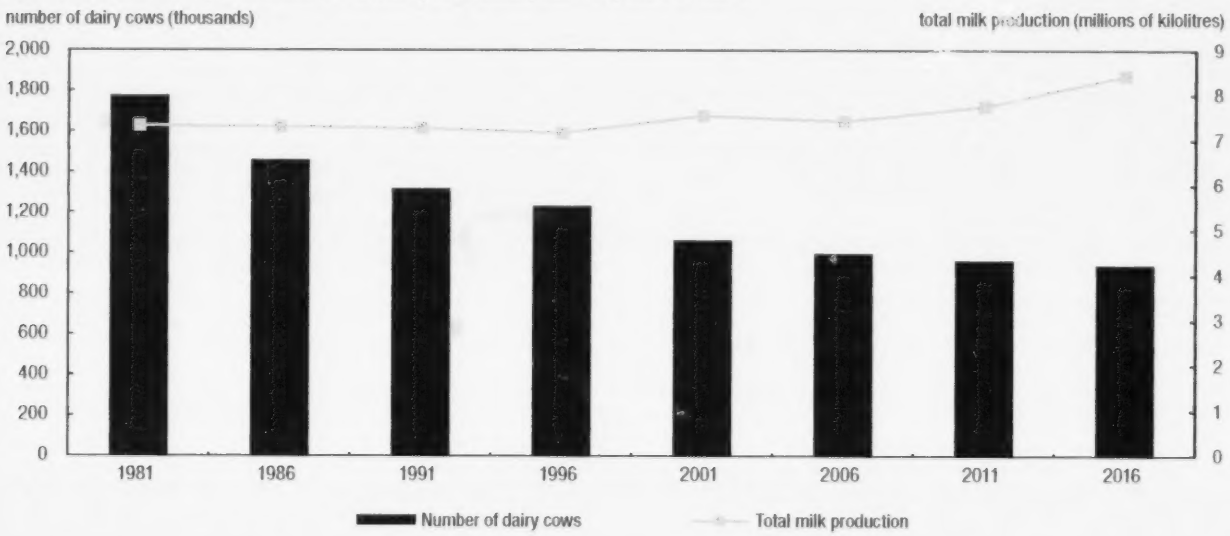
The number of small (200 dairy cattle or fewer) specialized dairy farms (operations reporting dairy cattle but no beef cattle) decreased, while the number of large (more than 200 dairy cattle) specialized dairy farms increased from 2011 to 2016, suggesting that the sector underwent some consolidation.

While some producers left the sector, those who stayed were able to grow as quota became available. On farms reporting dairy cattle in Quebec, the average number of dairy cattle per farm increased by 9.0% from 2011 to 85 in 2016. Ontario saw the same trend, with the average number of dairy cattle per farm on farms reporting dairy cattle rising 12.1% to 98 in 2016.

Producing more with less

The decrease in the national dairy herd was primarily due to improved production efficiency. Data on the sale of milk indicates that from 2011 to 2016, milk production in Canada increased despite a smaller dairy herd (CANSIM table 003-0011, accessed April 13, 2017).

Chart 3
Total number of dairy cows and total milk production, Canada, 1981 to 2016



Sources: CANSIM tables 003-0011, 004-0004 and 004-0221 (accessed April 13, 2017).

Increased efficiency in the dairy industry was achieved through improvements in feed quality and management, genetics and advancements in technology, including the use of robotic milking. According to data from the Census of Agriculture, 8.9% of dairy type operations now use robotic milking.

Mid-sized farms are more likely to report robotic milking than small and large-sized farms with 44.7% of dairy type farms reporting robotic milking having 101 to 200 cows (Table 1).

Table 1
Dairy type operations reporting robotic milking in the year prior to the census by size class, Canada, 2016

Size Class (number of dairy cattle)	Number of dairy type operations	Number of dairy type operations reporting robotic milking	Percent of dairy type operations reporting robotic milking	Percent of dairy cows on operations reporting robotic milking
1 to 50	1,815	17	0.9	1.3
51 to 100	4,693	307	6.5	7.5
101 to 200	2,847	420	14.8	15.8
201 to 500	988	172	17.4	16.6
501 or more	176	23	13.1	12.4
Total	**10,519**	**939**	**8.9**	**12.4**

Source: Census of Agriculture (3438).

In addition to using robotic milking, the improved efficiencies of many dairy type farms can be linked to advancements in animal housing, milking technology, herd management and feed management. In 2015, almost half of dairy type farms reported using automated environmental controls for animal housing or automated animal feeding technology. Investment in innovative technology contributes to the dairy industry producing more with less.

Pig numbers recover in 2016

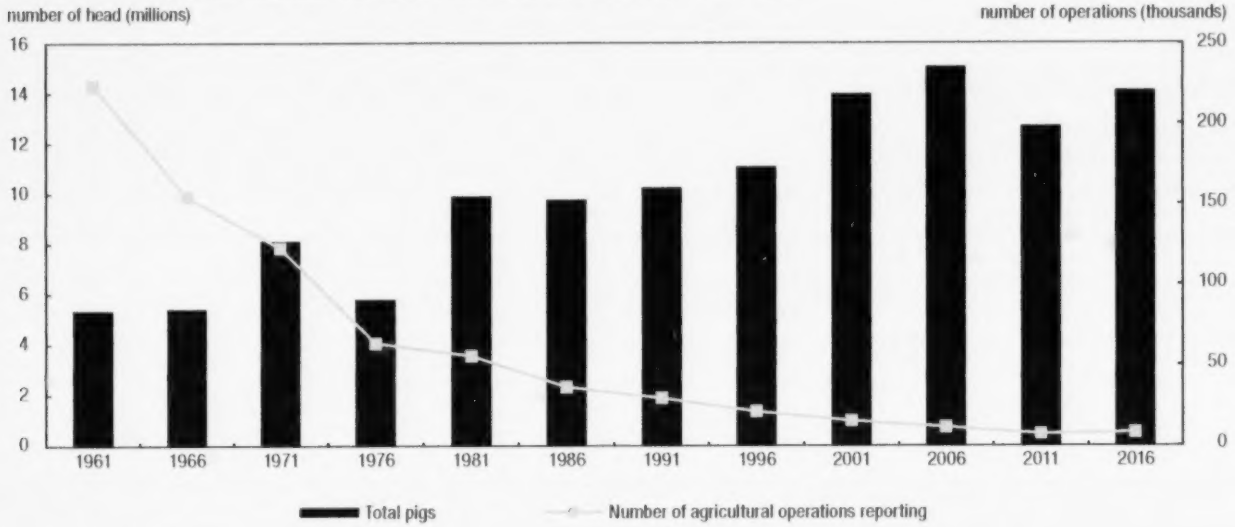
The number of pigs on Canadian farms has increased since 2011. Over this period, pig prices rose to record highs before decreasing in late 2014 (CANSIM table 002-0068, accessed April 13, 2017). Higher prices, as well as production efficiencies and changing markets have influenced pig production.

According to the Organisation for Economic Co-operation and Development and the Food and Agriculture Organization of the United Nations Agricultural Outlook, world pork consumption per capita continues to grow, rising 2.8% between 2011 and 2016. Increased demand from other countries has supported prices and contributed to growth in the North American pig sector.

While the United States remains Canada's top destination for both live swine and swine meat, total exports of swine meat to China has almost quadrupled in quantity since 2011 (Statistics Canada. 2017. Special tabulation, based on World Trade Atlas Database, accessed April 13, 2017). Canada's access to foreign markets continues to play an important role in the industry's success.

The number of pigs reported in Canada rose 11.1% from 2011 to 14.1 million in 2016, while the number of farms reporting pigs increased from 7,371 to 8,402. On farms reporting pigs, the average number of pigs per farm decreased 2.5% to 1,677 per farm.

Chart 4
Total number of pigs and agricultural operations reporting, Canada, 1961 to 2016



Sources: CANSIM tables 004-0004 and 004-0223.

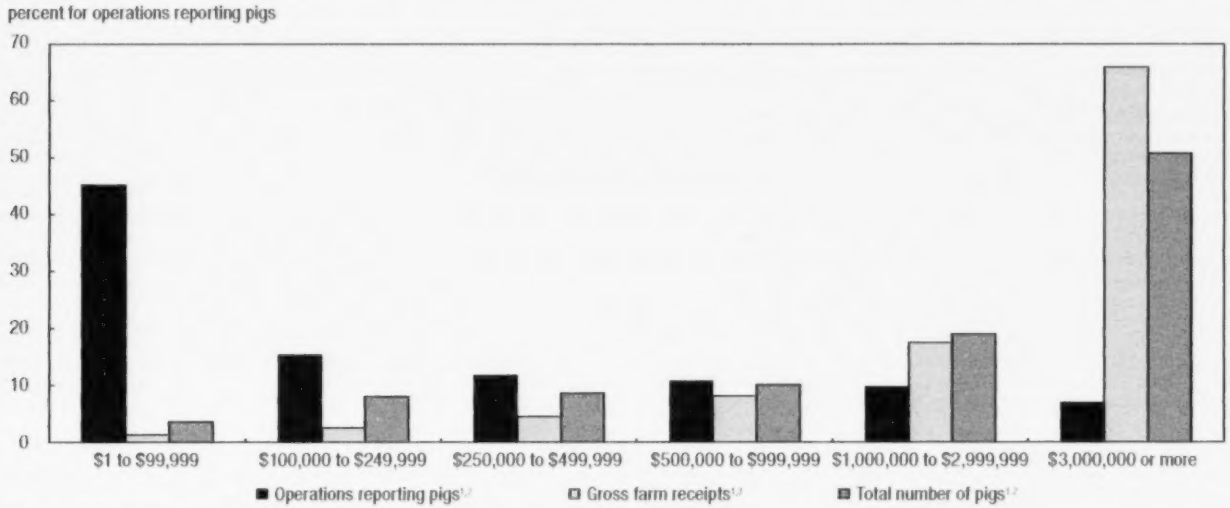
From 2006 to 2011, the number of pigs fell by 15.7%. The decline was attributable to low prices for market pigs, disease outbreaks and higher feed prices, which greatly affected the profitability of pig production during that time.

The pig industry has consolidated over the last five decades, with fewer farms holding more pigs. From 2011 to 2016, the 11.1% growth in the number of pigs was driven by operations reporting 50 or more pigs, which accounted for 99.7% of the pig herd in 2016.

However, the increase in the number of farms reporting pigs was driven by small producers, commonly reporting other livestock or crops in addition to pigs. Operations reporting less than 50 pigs increased from 2,912 to 4,202 between the censuses.

In 2016, fewer farms accounted for a greater number of pigs and a higher proportion of gross farm receipts. Out of all operations that reported pigs nationally, 590 operations reported $3 million or more in gross farm receipts. These operations accounted for 7.0% of farms and 65.9% of gross farm receipts on farms reporting pigs, and 50.7% of total pigs.

Chart 5
Operations reporting pigs, gross farm receipts and total number of pigs as a percentage of operations reporting pigs, by receipts class, Canada, 2016



1. Totals may not equal 100% due to rounding.
2. Total pigs and operations reporting pigs are based on 2016.
3. Gross farm receipts are based on 2015.

Source: Census of Agriculture (3438).

The recovery of the pig sector has seen pig farming operations become more intensive and specialized as consolidation continues. Farms reporting 50 or more head reported no other type of livestock in 56.0% of cases, compared with 5.5% of farms reporting less than 50 head.

Operations reporting fewer than 50 pigs often prefer to access markets for fresh local food. Direct marketing is the practice through which farms sell agricultural products directly to consumers for human consumption. In the case of farms reporting pigs, this could include meat cuts or value-added products such as sausages or other products from the farm.

Among operations reporting less than 50 pigs, 40.8% reported selling directly to consumers for human consumption, compared with 11.0% of those reporting 50 or more pigs. Farmers are also participating in farm gate sales or farmers' markets in order to promote their businesses.

Increases in major pig producing provinces

Quebec, Ontario and Manitoba continued to account for the majority of pigs and pig farm operations in 2016. Combined, they accounted for 81.1% of total pigs and 63.9% of total farms reporting pigs.

All three provinces benefitted from higher prices in 2014 and effective disease management. Advances in genetics, nutrition and health have also benefitted the industry. The pig sector in these three provinces is marked by a number of large, integrated companies, some of which use contract growers to raise pigs on their behalf. Compared with cattle, the shorter gestation period for pigs and large litters mean that producers are able to respond more quickly to favourable market conditions.

Total pigs in Quebec increased 10.0% from 2011 to 4.5 million pigs in 2016. Quebec remained the largest pig producing province, accounting for 32.0% of the national total.

Ontario's pig numbers increased 14.4% from 2011 to 3.5 million pigs in 2016. Ontario continued to have the most farms reporting pigs in 2016, accounting for almost one-third of all farms with pigs.

Manitoba saw the largest growth in the number of pigs, up 18.7% from 2011 to 3.4 million. On farms reporting pigs in Manitoba, the average number of pigs per farm increased from 4,831 pigs in 2011 to 5,087 pigs in 2016, largely as a result of the large production units in Manitoba. For farms reporting pigs, Manitoba also reported the highest average number of pigs per farm among the provinces in 2016.

Canadians eating more chicken and eggs

The poultry sector saw increases in the production of both meat and eggs. The decision to produce more chicken and eggs was a result of increased demand. Like the dairy industry, the poultry industries are supply managed with a quota system regulating production levels.

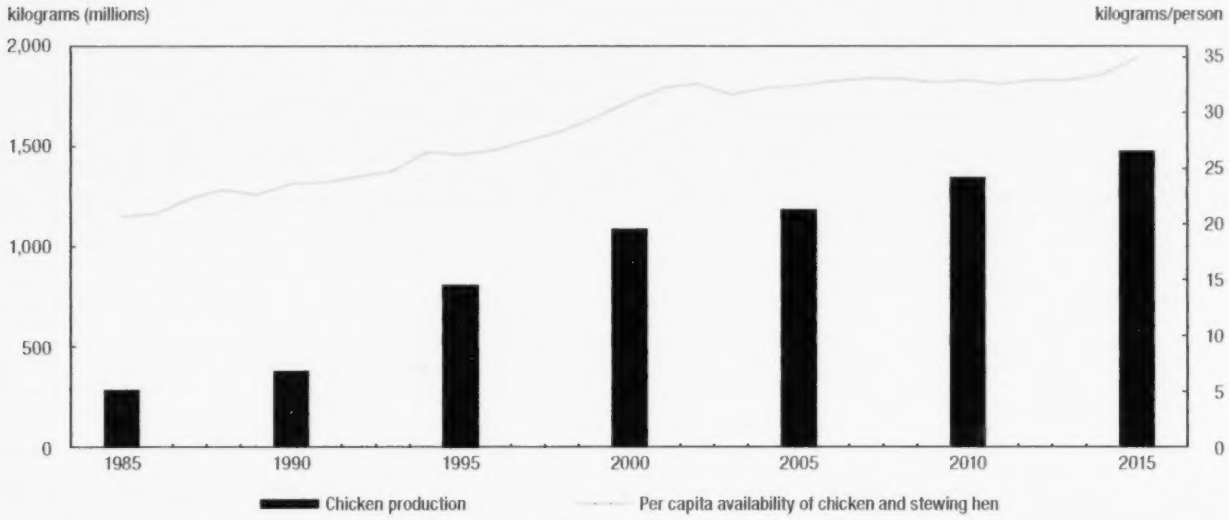
Broiler production concentrated in three provinces

Broiler production increased 9.8% from 2010 to 1.5 billion kilograms (live weight) in 2015 (the last full production year). As was the case in 2010, Canada's largest three broiler producing provinces by volume were Ontario, Quebec and British Columbia. With 1.1 billion kilograms of chicken meat produced in 2015, these three provinces were responsible for 75.3% of national production.

Per capita availability of chicken and stewing hen reaches record high

In addition to the population growth from 2011 to 2016, increased per capita demand for chicken has contributed to the growth of the chicken industry. In 2015, availability of chicken and stewing hen reached a record high 34.98 kilograms per person in eviscerated weight (CANSIM table 002-0011, accessed April 13, 2017).

Chart 6
Total chicken production in live weight and per capita availability of chicken and stewing hen in eviscerated weight, Canada, 1985 to 2015



Sources: Census of Agriculture (3438) and CANSIM table 002-0011 (accessed April 13, 2017).

Turkey production also rises

Turkey production increased 7.1% from 2010 to 210.7 million kilograms in 2015. Similar to broiler production, Ontario, Quebec and British Columbia were the largest three producers, accounting for 77.6% or 163.4 million kilograms of national production.

Ontario leads egg production in Canada

The number of table eggs increased 10.9% from 2010 to 616.7 million dozen eggs in 2015. The number of hatching eggs rose 19.3% from 2010 to 64.7 million dozen eggs in 2015. Ontario continued to lead egg production in Canada, representing 38.7% of national table egg production and one-third of national hatching egg production.

Direct marketing also plays a role on farms producing table eggs. In 2015, 72.1% of all operations reporting table eggs sold directly to consumers for human consumption. Among operations reporting table eggs, 82.8% of those with gross farm receipts under $10,000 reported direct marketing.

Meanwhile, 26.5% of farms producing table eggs with gross farm receipts over $3 million reported direct marketing. The majority of these operations sell their products at farm gate sales, stands or kiosks.

Fewer mink reflect reduced profitability

The total number of mink reported in Canada decreased 29.7% from 2011 to 550,660 in 2016. The number of farms reporting mink decreased 31.7% to 194. On farms reporting mink, the average number of mink per farm increased 2.9% to 2,838.

The ratio of expenses to receipts for farms reporting mink was 0.98 in 2015, less favourable by 0.19 from 2010. With low profitability in the sector, many operators have exited the industry. Nova Scotia continues to report the most mink in Canada, accounting for 45.9% of national inventory.

Goat inventory up in Ontario

The total number of goats in Canada for dairy, meat and fiber increased 2.0% from 2011 to 230,034 in 2016. Ontario accounted for 56.6% of national inventory. The number of goats reported in Ontario rose 12.0% from 2011 to 130,219 in 2016. The growth in goat inventory has been driven by increased demand for both goat meat and milk.

More sheep in Manitoba

The total number of sheep in Canada decreased 4.9% from 2011 to 1.1 million in 2016. This was coupled with a 7.1% decrease in the number of farms reporting sheep.

Counter to the national trend, Manitoba posted the largest increase in the number of sheep, up 43.2% to 90,423 animals. While Ontario still accounted for the most sheep in Canada at 30.5% of total inventory in 2016, Manitoba increased its share of the national sheep flock to 8.6% in 2016, up 2.9 percentage points from 2011.

Bison still roam the Prairies

The total number of bison in Canada decreased 4.7% from 2011 to 119,314 in 2016. Alberta and Saskatchewan accounted for almost four-fifths of the national total.

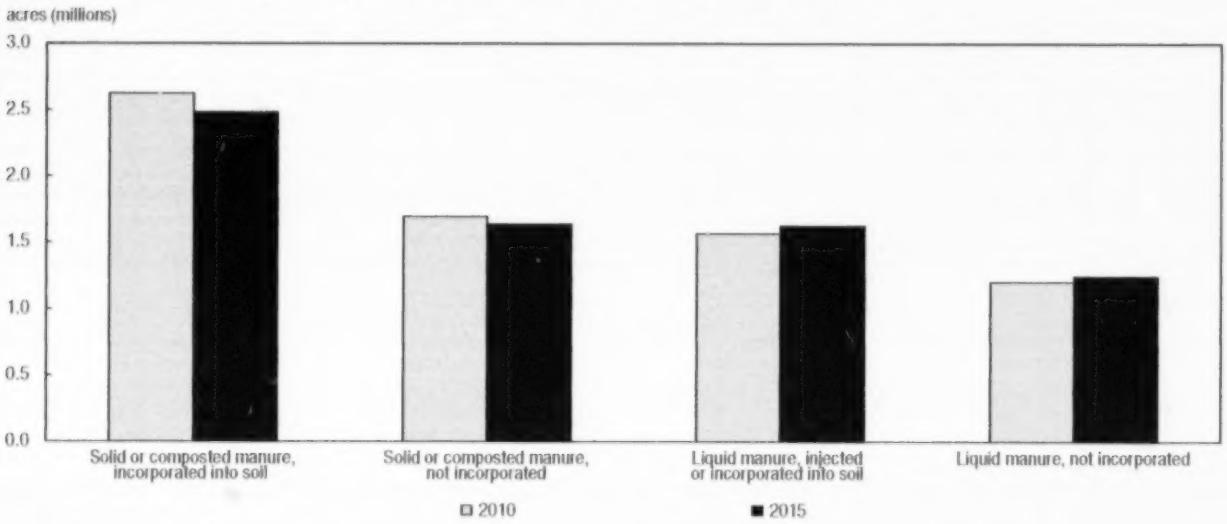
Bison numbers in the Prairies as a whole have decreased by less than 2% since 2011. Increased demand and better prices have contributed to keeping Prairie bison numbers relatively stable.

Manure area stable

Manure is a by-product of the livestock sector and is a valuable input for crop production. The area of land where manure was applied edged down 1.3% between 2010 and 2015.

This slight decrease in total manure was driven by a decrease in the application of solid or composted manure relative to the increase in the application of liquid manure. Solid manure is predominantly an output of beef production, while for dairy and pig operations, liquid manure is more prevalent. Lower beef cattle numbers led to the decrease of solid manure. Despite the decline, solid manure continued to be applied to more area than liquid manure.

Chart 7
Total manure acreage by manure type and application methods, Canada, 2010 and 2015



Source: CANSIM table 004-0207.

Specialized dairy operation: Operation reporting dairy cattle (dairy cows and dairy heifers) and no beef cattle.

Dairy type operation: An operation classified using the North American Industry Classification System (NAICS), 2012 is considered a dairy type operation if 50% or more of its gross farm receipts come from dairy and milk production.